

In the Abstract

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According to one exemplary embodiment, a heterojunction bipolar transistor comprises a base having a concentration of a first material at a first depth, where the first material impedes the diffusion of a base dopant. ~~For example, the first material can be carbon and the base dopant can be boron.~~ The first material also causes a change in band gap at the first depth in the base. According to this exemplary embodiment, the base further ~~comprises~~ includes a concentration of a second material, where the concentration of second material increases at the first depth so as to counteract the change in band gap. ~~For example, the second material may be germanium. The concentration of the second material, for example, may increase at the first depth by amount required to cause a decrease in band gap to be substantially equal to the increase in band gap caused by concentration of the first material.~~
